Atomic User Guide v0.1.7

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Getting started

This guide gives a workflow example for annotating a corpus with Atomic.

Resources

If you want to know more about Atomic, please refer to the Atomic website [http://linktype.iaa.uni-jena.de/atomic] .

If you want to receive notifications about upcoming changes, new releases, etc., or get in touch with other Atomic users, please subscribe to the Atomic Users mailing list (atomic-user@listserv.uni-jena.de) [https://lserv.uni-jena.de/mailman/listinfo/atomic-user] .

If you have suggestions, feature requests, problems, or want to file a bug report, please create a new issue at Atomic's issue tracker at github.com [https://github.com/infraling/atomic/issues] . When reporting bugs, please don't forget to mention the version of Atomic you are using, and your operating system and architecture (e.g., Windows 7, 64 bit).

Atomic is open source under the Apache License, Version 2.0 [http://www.apache.org/licenses/LICENSE-2.0.html] , and you can find the source code at github.com/infraling/atomic [https://github.com/infraling/atomic] .

If you want to learn about Salt (Atomic's data model), or Pepper, the converter framework for linguistic formats (included in Atomic), please go to the SaltNPepper homepage [https://korpling.german.hu-berlin.de/saltnpepper/] .

The workspace

In Atomic, workspaces can be defined. A workspace is a physical location (i.e., path on the file system) where Atomic stores projects, folders and files. You are asked to pick a workspace location when running

Atomic for the first time, and each subsequent time you run the application if you haven't activated the option to remember the workspace.

Creating a project

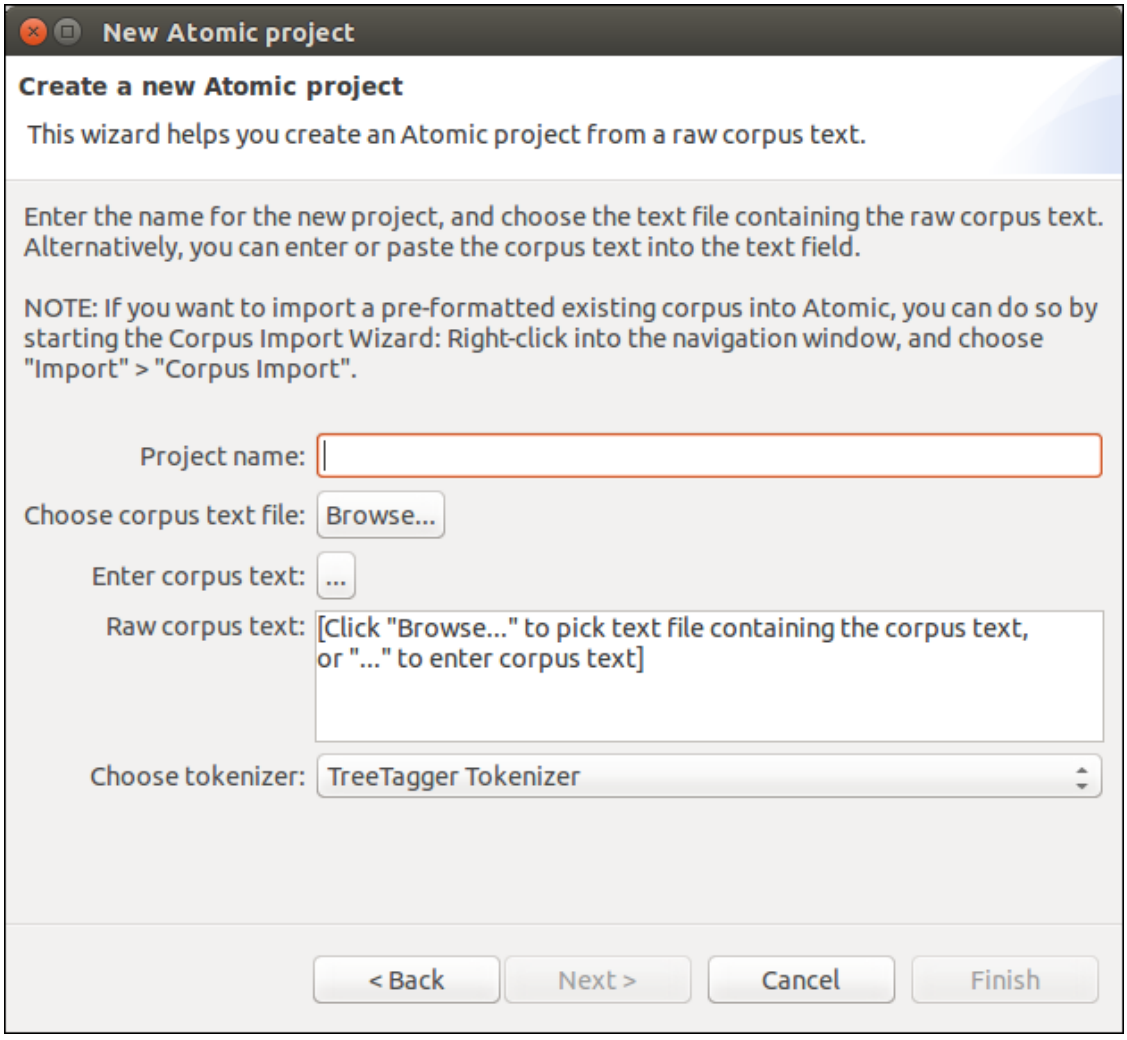
There are two ways to create a project in Atomic:

- Create a new project from scratch, providing the corpus text.
- Import an existing corpus from one of the formats which can be read by Pepper.

Create a new project

To create a new Atomic project, open the *New Project Wizard*, either by going to File → New Project, or by pressing *CTRL + N*. In the wizard, choose *New Atomic Project*.

Figure 1. The New Project Wizard at Step 2.


New Atomic project
Create a new Atomic project
This wizard helps you create an Atomic project from a raw corpus text.
Enter the name for the new project, and choose the text file containing the raw corpus text. Alternatively, you can enter or paste the corpus text into the text field.
NOTE: If you want to import a pre-formatted existing corpus into Atomic, you can do so by starting the Corpus Import Wizard: Right-click into the navigation window, and choose "Import" > "Corpus Import".
Project name:
Choose corpus text file:
Browse...
Enter corpus text:
...
Raw corpus text:
[Click "Browse..." to pick text file containing the corpus text, or "..." to enter corpus text]
Choose tokenizer:
TreeTagger Tokenizer
< Back
Next >
Cancel
Finish

In the next step (cf. Figure 1, “The New Project Wizard at Step 2.”), fill in the project name, and

- choose a *.txt* file containing the corpus text and select the file's encoding, or

- enter the corpus text via the text field provided after clicking the ... button.

Finally, choose the tokenizer that should be used to tokenize the corpus text (currently, only the TreeTagger Tokenizer is available), and press *Finish*.

The corpus text will now be tokenized, and the project created.

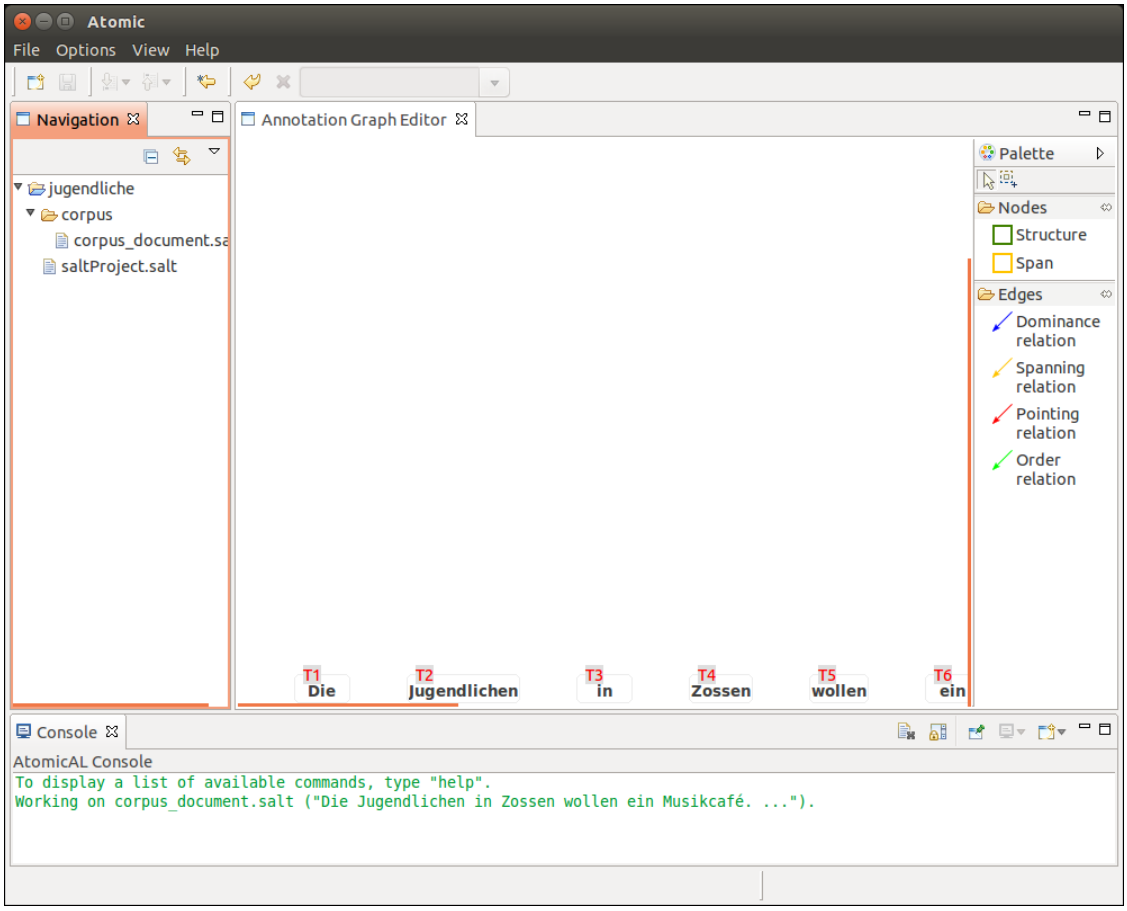
Import an existing corpus

In order to import an existing corpus, right-click into the *Navigation* window and choose Import ... from the pop-up menu. In the Import Wizard, choose Atomic → Corpus Import. Follow the instructions provided by the Import Wizard to import a corpus from one of the supported formats. These are currently: CoNLL, EXMARaLDA, Elan, MMAX2, PAULA, RelANNIS, SaltXML, Treetagger, UAM. The corpus will be imported, and wrapped in a new project.

Annotation with the Annotation Graph Editor

To open a corpus document of your choice in the Annotation Graph Editor, double-click the file containing the respective corpus document in the Navigation view. Should you have opened this file with another editor before, Atomic will have remembered the editor the file was opened with last. In this case, right-click onto the file, and choose Open With → Annotation Graph Editor from the pop-up menu. When opening a newly created document, the editing area will show the tokenized corpus text.

Figure 2. Atomic application window with Annotation Graph Editor.



Tool-based annotation

The Annotation Graph Editor includes a tools palette which can be used for tool-based annotation. The following paragraphs describe how to use the tools in the palette to create an annotation graph for the corpus document.

Keyboard navigation

The Annotation Graph Editor can be navigated via the keyboard using the following keys.

- *Arrows (Left, Right, Up, Down)*: Change the currently selected element.
- *Shift-Arrows*: Extend the currently selected element to include the elements to the left, the right, above, or below.
- *Ctrl-Arrows*: Move focus to a different element without changing the selection.
- *Ctrl-Shift-Arrows*: Scroll the GEF viewer left, right, up, or down.
- *Alt-Down Arrow*: Change the currently selected element to be the first nested element within the element that currently has focus.
- *Alt-Up Arrow*: Change the currently selected element to be the parent element containing the element that currently has focus.
- */*, \: Change the selection to be a connection associated with the element with focus. Repeatedly pressing either of these keys cycles the current selection forward or backward through the connections associated with the element with focus.
- *?*, |: Extend the selection to include connections associated with the element with focus.

Creating nodes

Click on the Structure Tool or the Span Tool in order to create a new node. Then, either drag-and-drop the tool onto a position of your choice in the editing area, or click on the editing area at the position of your choice.

Drag-and-drop will create the node, but will not open the annotation field for direct annotation of the newly created node. Click-and-point will create the node and open the annotation field for direct annotation of the node.

If you have selected any nodes in the editing area before using a node tool, the new node will be created, and edges will be created from it to all of the selected nodes.

When using the Structure Tool, the type of the newly created edges will be *dominance relation*.

When using the Span Tool, the type of the newly created edges will be *spanning relation*, and edges will only be created to selected nodes of type *token*, as spanning relations only accept tokens as target nodes.

Creating edges

To create an edge, click on the respective tool, then click on the node that should be the source of the edge, and subsequently on the node that should be the target of the edge.

The edge will be created, but the annotation field will not automatically open. In order to annotate edges, please see Annotation of elements.

Annotation of elements

In the Annotation Graph Editor, annotations have a *key* and a *value*, and optionally can be assigned to a *namespace*. Annotations are entered in the annotation field using either of the following patterns.

```
[namespace]::[key]:[value]
[key]:[value]
```

[Key] and [value] are shown directly on the element, the namespace is shown in a pop-up when hovering over an annotation.

Elements (i.e., nodes as well as edges) can be annotated by selecting the element via the mouse or the keyboard's arrow buttons, and then either clicking on it once, or pressing *Return*.

This action will open the annotation field for direct editing. You can enter one or more annotations, with one annotation per line. To add a line-break, press *Return*. To commit the annotations, press *CTRL* + *Return*. To abort editing the annotations, press *ESC*.

To edit a single existing annotation on an element, select the annotation by mouse or keyboard, and either click on it, or press *Return*. This will open the single annotation field. Change the annotation, and press *Return* to commit it. Press *ESC* to abort the editing process.

Deleting elements and annotations

In order to delete elements and annotations, select the respective element(s) or annotation(s) per mouse or keyboard and either press *DEL* or click the delete symbol in the menu bar.

Command-line-based annotation with AtomicAL

Atomic provides the native annotation language Atomic Annotation Language (AtomicAL) for rapid command-line annotation.

The AtomicAL console is available when an editor with AtomicAL support is open. The AtomicAL console can be opened via the menu: View → AtomicAL Console. The AtomicAL console displays the name of the document it is currently working on as well as the first few characters of the corpus text.

For a complete list of available commands, see AtomicAL reference.

Creating nodes

To create a new structure node, use the *n* command. It takes as arguments

- one or more annotations in one of the following forms.

```
[key]:[value]
[namespace]::[key]:[value]
```

Example:

```
n syntax::cat:NP lemma:Atomic
```

To create a new span node, use the *s* command. It takes as arguments

- one or more annotations in one of the following forms.

```
[key]:[value]
[namespace]::[key]:[value]
```

Example:

```
s coref::reftype:group text:"The board"
```

Creating edges

To create a new edge, use the *e* command. It takes as arguments

- an edge type flag, which defines the type of the edge to be created

  For a list of valid flags see Table 2, “AtomicAL edge type flags”. Also see there for an explanation of how edge type flags are re-used.

- exactly one source node, referenced via its ID
- exactly one target node, referenced via its ID
- one or more annotations in one of the following forms.

```
[key]:[value]
[namespace]::[key]:[value]
```

Example:

```
e -p n2 n1 coref::coreftype:anaph
```

Annotation of elements

To annotate elements, use the *a* command. It takes as arguments

- an element or a list of elements or a set of elements or a combination of the three
- one or more annotations in one of the following forms, where the last one (an annotation with a null value) marks an existing annotation with key [key] for deletion.

```
[key]:[value]
[namespace]::[key]:[value]
[key]:
```

Example:

```
a n1 n3 t2..t5 d3 o4 x: y:y z::z:z
```

Deleting elements and annotations

For the deletion of annotations, see the section called “Annotation of elements”.

To delete elements, use the *d* command. It takes as arguments

- an element or a list of elements or a set of elements or a combination of the three

Example:

```
d n1..n5 d1 o3
```

Reference

AtomicAL

Note that some AtomicAL commands can be issued not only for single elements, but also for sets of elements where all elements are of the same type and have subsequent IDs. The following command, for example, groups all tokens from *t1* to *t5* (i.e., *t1*, *t2*, *t3*, *t4*, and *t5*) under a new parent structure node, which is annotated with *cat:NP*.

```
p t1..t5 cat:NP
```

Also note that whenever a command takes *[key]:[value]* or *[key]:* commands, these can be grouped. I.e., to annotate element *n1* with annotations *x:x*, *y:y* and *z:z*, you can do so in one single command, as shown below.

```
a n1 x:x y:y z:z
```

Table 1. AtomicAL commands

Command	**Arguments**	**Syntax example** [a]
help (Show help)		help
n (New structure node)	[key]:[value]	n pos:np
s (New span node)	[element] [element] [key]:[value] [element]..[element] [key]:[value]	s t1 t2 t3 cat:NP s t1..t10 cat:NP
e (New edge)	-[type] [b] [source] [target] [key]:[value]	e -d n1 t3 cat:NP
a (Annotate)	[element] [key]:[value] [element] [key]:	a n1 pos:np (Deletes the annotation with key [key])
d (Delete element)	d [element] [element] d [element]..[element]	d n1 n2 n3 d n1..n10

Command	Arguments	Syntax example [a]
p (Group under new parent)	p [element] [element] [key:val] p [element]..[element] [key:val]	p n1 n2 cat:NP p n1..n8 cat:NP

[a] For reasons of readability, namespace annotations have been left out completely. Please note that whenever a command can take a *[key]:[value]*, it can also take a *[namespace]::[key]:[value]* argument.

[b] Cf. Table 2, “AtomicAL edge type flags”. Also note that if a flag has been set in an *e* command before, this flag can be re-used in subsequent uses of the command, i.e., the edge type flag remains active until a new flag is explicitly set. In order to re-use the active flag, don't specify a flag with the command (e.g., *e n1 n2*).

Table 2. AtomicAL edge type flags

Flag	Edge type
d	Dominance relation
s	Spanning relation
p	Pointing relation
o	Order relation

Install new plugins

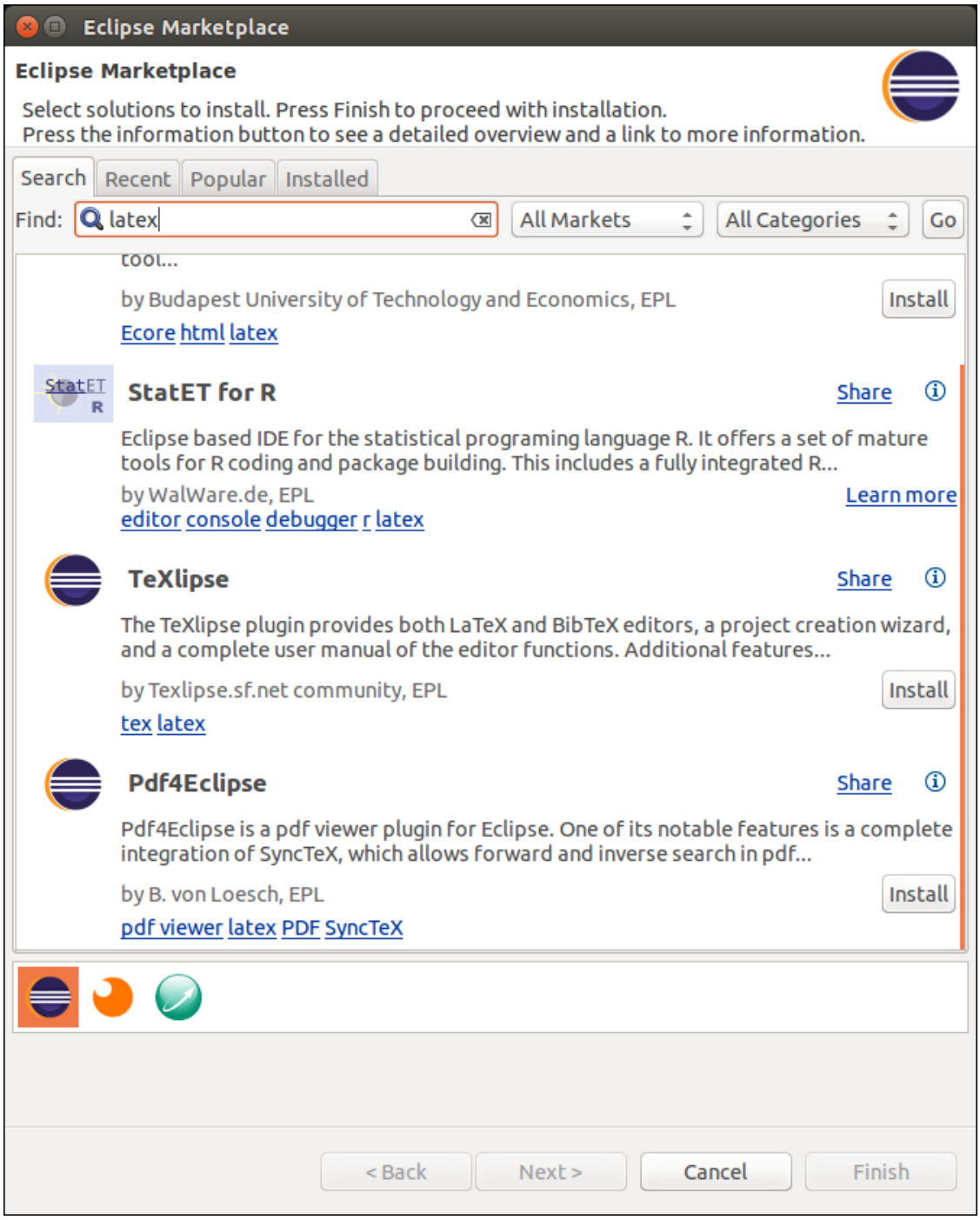
In Atomic, you can very easily add new functionality to the application yourself, at runtime. This is done by installing additional plugins in Atomic. There are generally two way to achieve this, depending on how the plugin is being made available:

- Install new plugins via the Eclipse Marketplace
- Install new plugins from a p2 repository

Install new plugins via the Eclipse Marketplace

The Eclipse Marketplace [http://marketplace.eclipse.org/] is a platform for third-party Eclipse-based solutions, i.e., plugins (or complete applications). Plugins available from the marketplace can be consumed by any Eclipse-based application, such as Atomic. Searching the marketplace and installing software from it is achieved via the Eclipse Marketplace client included in Atomic.

Figure 3. The Eclipse Marketplace client.


Eclipse Marketplace
Eclipse Marketplace
Select solutions to install. Press Finish to proceed with installation.
Press the information button to see a detailed overview and a link to more information.
Search
Recent
Popular
Installed
Find:
latex
All Markets
All Categories
Go
by Budapest University of Technology and Economics, EPL
Install
Ecore html latex
StatET for R
Share
Eclipse based IDE for the statistical programing language R. It offers a set of mature tools for R coding and package building. This includes a fully integrated R...
by WalWare.de, EPL
Learn more
editor console debugger r latex
TeXlipse
Share
The TeXlipse plugin provides both LaTeX and BibTeX editors, a project creation wizard, and a complete user manual of the editor functions. Additional features...
by Texlipse.sf.net community, EPL
Install
tex latex
Pdf4Eclipse
Share
Pdf4Eclipse is a pdf viewer plugin for Eclipse. One of its notable features is a complete integration of SyncTeX, which allows forward and inverse search in pdf...
by B. von Loesch, EPL
Install
pdf viewer latex PDF SyncTeX
< Back
Next >
Cancel
Finish

In order to install a new plugin, go to Options → Install new plugins from Eclipse Marketplace . This will open the Eclipse Marketplace client. Its use is fairly self-explanatory. You can browse different categories, or search for plugins. Once you have found a plugin you want to install, simply click the provided install button next to the search result, and follow the instructions.

Example: Install XML editing support in Atomic

If you are working on corpus annotations available in an XML dialect, such as SaltXML which is used in Atomic, you may want to be able to edit the source files comfortably with a dedicated XML editor. There is a variety of solutions available from the Eclipse Marketplace, including XMLEspresso [http://marketplace.eclipse.org/content/xmlespresso-xml-editor-eclipse-plugin], which can automatically generate grammars for unknown XML schemas and DTDs. To install this plugin, do the following.

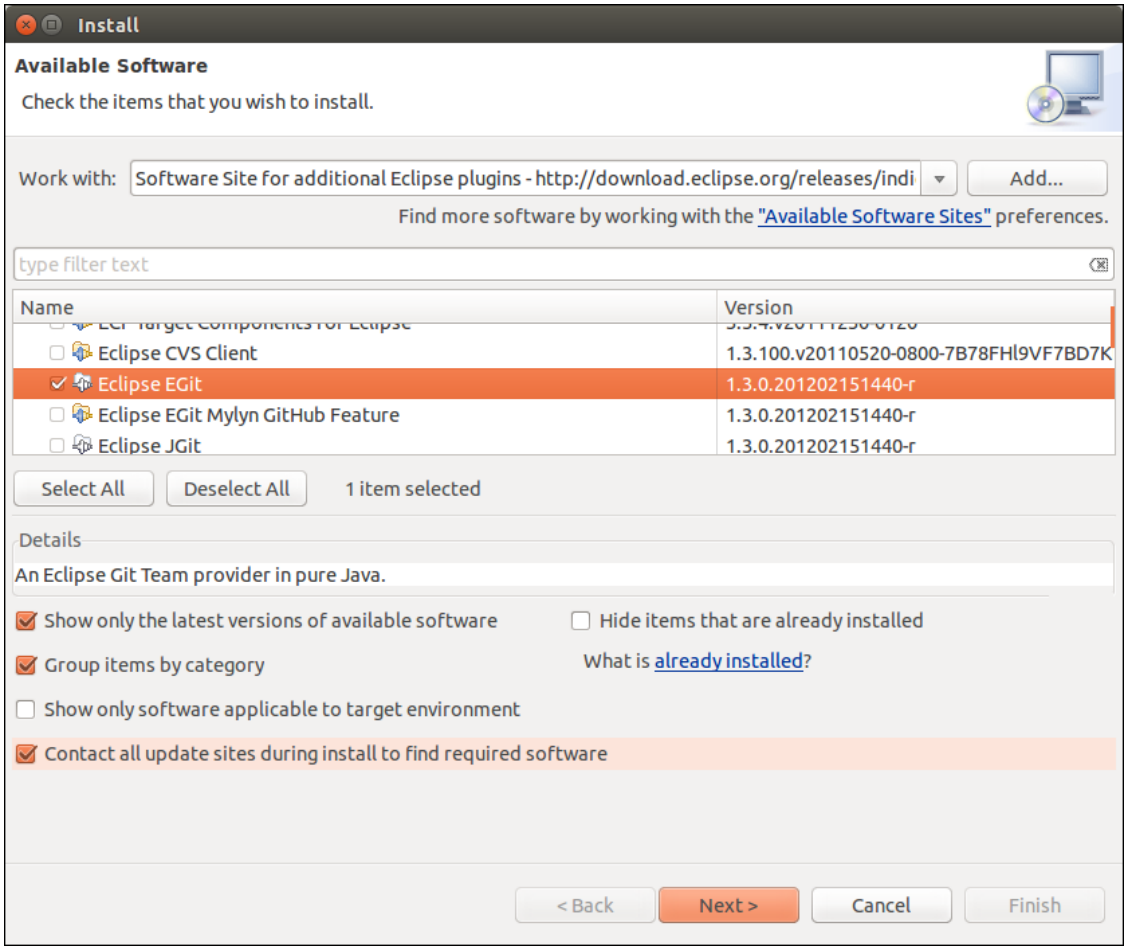
- Open the Eclipse Marketplace Client (see above).
- Search for "*xmlespresso*". The first result should be the XMLEspresso plugin.
- Click the install button.
- The EM client will calculate requirements and dependencies. Once its finished, review the items that you want to install and click *Next*.
- Read the license and accept it.
- Atomic will now install XMLEspresso. Once its finished, you wil be prompted to restart Atomic. Click *Restart Now*.
- Once Atomic is restarted, XMLEspresso is installed and accessible via right-click on an XML, or .salt, file in the Navigation View, and the Open With → Other ... menu item.

Install new plugins from a p2 repository

Atomic can install plugins from p2 repositories, e.g., when they are not available via the Eclipse Marketplace. All of the plugins provided by Eclipse are available from the official Eclipse Software Site. Third-party plugins may have their own update sites, usually specified on the plugins homepage. Atomic includes an Install Wizard to search the available plugins and install them as needed. You can access it via Options → Install new plugins from p2 repository. In the Wizard you have to provide the URL of a p2 repository (Atomic already includes the reference to the official Eclipse repository). Select the *Software Site for additional Eclipse plugins* from the *Work with:* field, and wait until the contents are fully loaded. The plugins are shown in categories, but you can switch categorization off in the self-explanatory Install Wizard as well.

For further information on how to install plugins from a p2 repository, cf. Example: Install Git support in Atomic.

Figure 4. Atomic's Install Wizard.



Example: Install Git support in Atomic

In order to be able to version your corpora and annotations, and enable them for collaborative work, you may want to use a versioning system such as git, Subversion, or similar. And in order to be able to use these CVS from within Atomic, you may want to have CVS integration in the application itself instead of having to use an external command line. There are at least one (or more) plugins for this purpose available from the Eclipse p2 repository for all major version control systems.

In the case of git, the plugin you would want to install is *Eclipse EGit*. To install this plugin, do the following.

- Open the Install Wizard (see above).
- Select the p2 repository to work with, in this case *Software Site for additional Eclipse plugins* at http://download.eclipse.org/releases/indigo [http://download.eclipse.org/releases/indigo]. This is the default site and is already defined in Atomic.
- Search for "*egit*", or browse the category *Collaboration* until you find the entry "*Eclipse EGit*".
- Check the checkbox next to the plugin name.
- Click *Next*.

- The wizard will calculate requirements and dependencies. Once its finished, review the items that you want to install and click *Next*.
- Read the license and accept it.
- Atomic will now install EGit. Once its finished, you will be prompted to restart Atomic. Click *Restart Now*.
- Once Atomic is restarted, EGit is installed and accessible via right-click on a project in the Navigation View (cf. Figure 5, “Sharing an Atomic project to a git repository.”). You can now use EGit to version your corpus documents or any other files you have in your workspace. For more information on how to use EGit, please refer to the EGit User Guide [http://wiki.eclipse.org/EGit/User_Guide].

Figure 5. Sharing an Atomic project to a git repository.

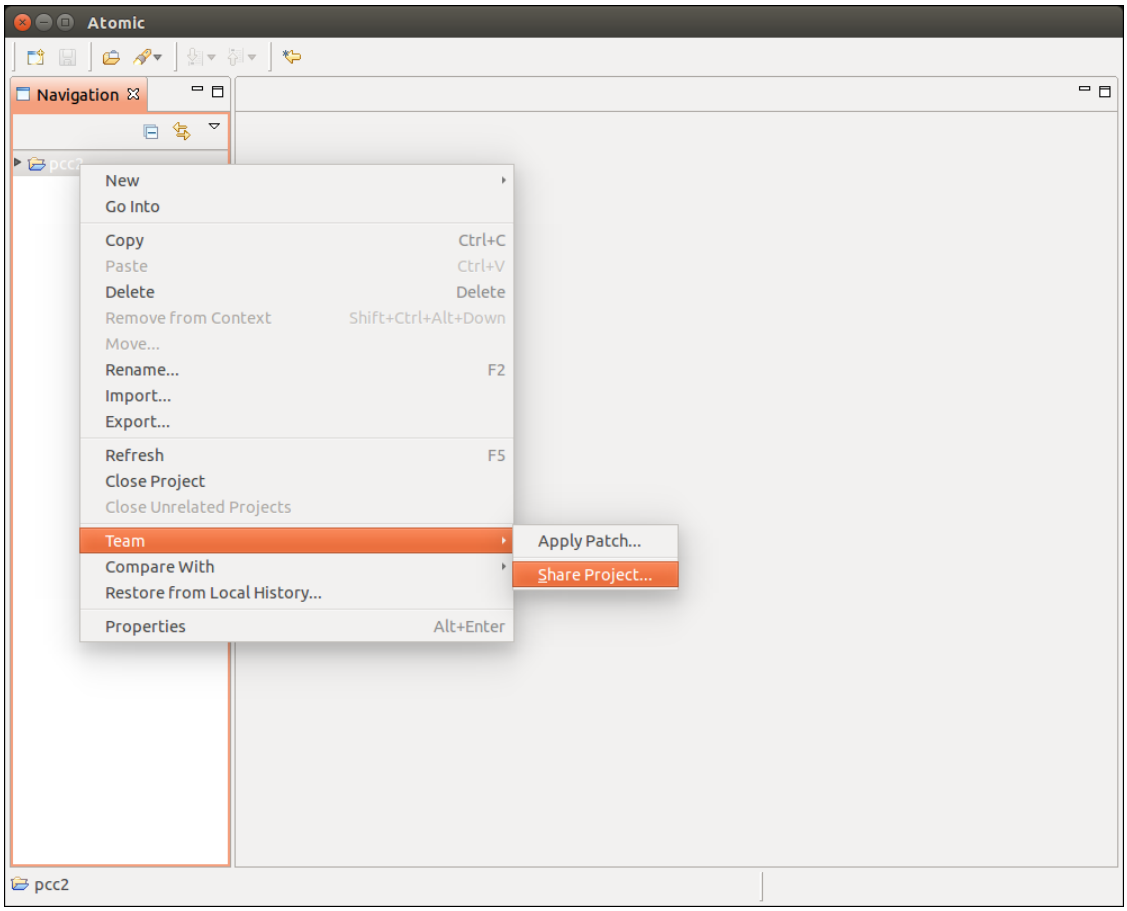


Figure 6. Configure a git repository in Atomic.